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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,828

02/09/2004

Jiachun Zhou

K&S-151US

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7590

04/11/2006

KULICKE AND SOFFA INDUSTRIES, INC.

2101 BLAIR MILL ROAD

WILLOW GROVE, PA 19090

EXAMINER

KOBERT, RUSSELL MARC

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 04/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/775,828

Applicant(s)

ZHOU ET AL.

Examiner

Russell M. Kobert

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

2. Applicants are reminded that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

The following is a recitation of MPEP 2111.04 that states that claim scope is not limited by claim language that does not limit a claim to a particular structure (note "structure"):

MPEP 2111.04 [R-3] "Adapted to," "Adapted for," "Wherein," and "Whereby" Clauses

Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. However, examples of claim language, although not exhaustive, that may raise a question as to the limiting effect of the language in a claim are:

- (A) "adapted to" or "adapted for" clauses;
- (B) "wherein" clauses; and
- (C) "whereby" clauses.

3. In order to emphasize claim language not considered furthering limiting the claimed invention, such limitations have been *italicized* in this Office Action.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Okubo et al (6294922).

Okubo et al anticipates a plunger pin (any one of Figures 1-4, 8, 9-18, 20, 22 and 23; pins 100, 100A, 100B) *configured for slidable retention in a carrier frame of a package testing apparatus*, the plunger pin comprising:

A first section (130) having a first diameter, the first section being adjacent a first end portion of the plunger pin, the first end portion being *configured for contact with an anisotropic conductive elastomer (ACE) of a package testing apparatus*;

A second section (110) having a second diameter, the second section being adjacent a second end portion of the plunger pin; and

A third section (120, 120A, 120B; see Figures 8-10, 12-15, 17 and 22) having a third diameter, the third section being disposed between the first section and the second section, the third diameter being less than both the first diameter and the second diameter; as recited in claim 1.

As to claim 2, having the first end portion defining a continuous curved tip *configured for contact with the ACE* is anticipated by Okubo et al (all tips shown in Okubo et al are continuously curved, it is only a matter as to what degree; specifically the tip of plunger pin 100 shown in Figure 17 is continuously curved).

As to claim 3, the continuously curved tip of the plunger pin having a height that is *configured to extend into the ACE during contact therebetween* does not further materially or physically change the claimed apparatus.

As to claim 4, having a maximum radius of the continuous curved tip being infinite is anticipated by Okubo et al since a maximum radius approaching infinity would have a nearly flat tip such as that shown in Figures 8, 10, 12, 15.

As to claim 5, having the continuous curved tip as an ellipsoid shape is anticipated by Okubo et al (In Figure 17, tip of 110 appears "elliptical").

As to claim 6, having the plunger pin being a solid plunger pin is fully anticipated by Okubo et al.

As to claim 7, having the second diameter ~~less~~ than the first diameter is anticipated by Okubo et al (see Figure 1, where at a lower end of 110 the diameter meets this condition).

As to claim 9, having the plunger *configured to be slidably held in the carrier frame* does not further materially or physically change the claimed apparatus.

As to claim 10, having the plunger pin *configured to slide within the carrier frame along a path length defined by the length of the second section minus a height of a retention flange of the carrier frame configured to retain the plunger pin therein* does not further materially or physically change the claimed apparatus.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo et al (6294922) as applied to claim 1 above, and further in view of Godfrey et al (6181149).

Although Okubo et al does not show the second end portion including a crowned portion defining a plurality of crowned tips as described in claim 8, Godfrey et al shows (Figure 8) a crowned portion of a contact pin at an end 300 having a crowned portion 802.

Although Okubo et al does not show the second end portion including a crowned portion defining a plurality of crown tips wherein the crowned portion has an outer diameter that is less than the first diameter as described in claim 11, Godfrey et al

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shows (Figure 8) a crowned portion of a contact pin at an end 300 having a crowned portion 802 wherein the crowned portion has an outer diameter that is less than a first diameter (see 310 which shows a larger diameter).

Although Okubo et al does not show the second end portion including a crowned portion defining a plurality of crown tips, the crowned tips being substantially arrayed in a symmetric orientation about a center point of the second end portion as described in claim 12, Godfrey et al shows (Figure 8) a crowned portion of a contact pin at an end 300 having a crowned portion 802 defining a plurality of crown tips (shown - not numerically labeled), the crowned tips being substantially arrayed in a symmetric orientation about a center point of the second end portion (shown - not numerically labeled; note that the apexes of the crown are symmetrically arranged in circular fashion about a center point).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the teaching of Godfrey et al to that of Okubo et al to make the claimed apparatus because Godfrey et al teach that there are several reasons for selecting different types of ends, some of which include providing easier maintenance of cleaning of the contacts or providing better penetration within input/output elements (col 8, ln 3-9).

9. Claims 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Godfrey et al (6181149) in view of Okubo et al (6294922).

Godfrey et al shows (Figures 2 and 3) a package testing apparatus comprising:

A substrate (320) including a plurality of contacts (322, 330, 332);

An anisotropic conductive elastomer (ACE) (214) having a top surface (oriented at lower side of 214) and a bottom surface (oriented at upper side of 214), wherein portions of the top surface are configured to be in conductive contact with at least a portion of the contacts of the substrate (col 5, ln 16-51);

A carrier frame (108) adjacent the bottom surface of the ACE; and

A plurality of plunger pins (208) configured for slidable retention by the carrier frame (note reference to stop ring 312 implies stopping movement of plunger pins from sliding beyond a predetermined distance within the carrier frame yet allows movement of the plunger pins within the limits of the predetermined distance; col 5, ln 14-15); as described in claim 13.

Although Godfrey et al does not explicitly describe all the details of the plunger pins as claimed, Okubo et al shows:

a plunger pin (any one of Figures 1-4, 8, 9-18, 20, 22 and 23; pins 100, 100A, 100B) *configured for slidable retention in a carrier frame of a package testing apparatus*, the plunger pin comprising:

A first section (130) having a first diameter, the first section being adjacent a first end portion of the plunger pin, the first end portion being configured for contact with the bottom surface of the anisotropic conductive elastomer (ACE) of a package testing apparatus when substituted for the pins (208) of Godfrey et al;

A second section (110) having a second diameter, the second section being adjacent a second end portion of the plunger pin; and

A third section (120, 120A, 120B; see Figures 8-10, 12-15, 17 and 22) having a third diameter, the third section being disposed between the first section and the second section, the third diameter being less than both the first diameter and the second diameter; as recited in claim 13.

As to claim 14, having the first end portion of the plunger pins defining a continuous curved tip configured for contact with the ACE is anticipated by Okubo et al (all tips shown in Okubo et al are continuously curved, it is only a matter as to what degree; specifically the tip of plunger pin 100 shown in Figure 17 is continuously curved).

As to claim 15, the continuously curved tip of the plunger pin having a height that is configured to extend into the ACE during contact therebetween is anticipated by Godfrey et al because Godfrey et al states that the anisotropic compliant conductive interposer has an elastomeric base which counteracts the force from the contact element (col 3, ln 6-8).

As to claim 16, having a maximum radius of the continuous curved tip being infinite is anticipated by Okubo et al since a maximum radius approaching infinity would have a nearly flat tip such as that shown in Figures 8, 10, 12, 15.

As to claim 17, having the continuous curved tip as an ellipsoid shape is anticipated by Okubo et al (In Figure 17, tip of 110 appears "elliptical").

As to claim 18, having the second diameter less than the first diameter is anticipated by Okubo et al (see Figure 1, where at a lower end of 110 the diameter meets this condition).

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As to claim 19, Godfrey et al shows (Figure 8) a crowned portion of a contact pin at an end 300 having a crowned portion 802.

As to claim 20, Godfrey et al shows (in the embodiment of Figure 4) the plunger pins configured to be slidably held in the carrier frame by a resilient flange (note concave-countersunk like shape in top surface of 108) of the carrier frame.

As to claim 21, having the plunger pins configured to slide within the carrier frame along a path length defined by the length of the second section minus a height of a retention flange of the carrier frame configured to retain the plunger pin therein is considered to be within the operable scope of the above combination.

As to claim 22, having the retention flange non-destructively resilient such that the plunger pins may be inserted into the carrier frame such that the second section of each of the plunger pins is positioned adjacent the retention flange is considered to be within the operable scope of the above combination.

As to claim 23, having the plunger pin being a solid plunger pin is considered to be within the operable scope of the above combination.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the teaching of Godfrey et al to that of Okubo et al to make the claimed apparatus because Godfrey et al teach that there are several reasons for selecting different types of ends, some of which include providing easier maintenance of cleaning of the contacts or providing better penetration within input/output elements (col 8, ln 3-9).

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10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Frederickson et al (6292003) shows (Figure 3b) a plunger pin (340, 342, 346) configured for slidable retention in a carrier frame (300) of a package testing apparatus.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (571) 272-1963.

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For an automated menu of Tech Center 2800 phone numbers call (571) 272-2800.



Russell M. Kobert
Patent Examiner
Group Art Unit 2829
April 3, 2006



VINH NGUYEN
PRIMARY EXAMINER

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04/06/06